

CLAIMS

1. A method for the characterisation of physical and/or chemical properties of a liquid, characterised in that,

- 1) at least one dependent physical and/or chemical property of a liquid is measured as a function of temperature and a component concentration as independent variables,
- 2) the values for the component concentration are determined by calculation, based on data from control programs for the change of component concentration in a computer and the temperatures are determined by calculation from the temperature control programs or by measurements;
- 3) the value of the component concentration is changed by adding in one step or gradually a predetermined amount of another liquid containing a different component concentration, and a representative number of measurements of the dependent physical or chemical property are performed within the whole selected temperature range within the predetermined change of the component concentration,
- 4) the procedures above are repeated at desired component concentrations and temperatures in order to obtain a wanted number of values;
- 5) the values obtained for the dependent properties are combined with the values for the independent properties to measuring points; and
- 6) the measuring points electronically stored in the computer are co-ordinated and visualised in a three-dimensional diagram.

2. A method according to Claim 1, characterised in that, a series of measurements are done under rising temperature, and following series of measurements are done under decreasing temperatures and vice versa.

3. A method according to ~~Claims 1 or 2~~, characterised in that, one portion of the liquid is removed and the same volume of the another liquid containing a different concentration of the component is thereafter added.

4. A method according to ~~any of Claims 1-3~~, characterised in that, the changes in concentration and/or the temperature are controlled by a program in the computer.

5. A method according to ~~any of Claims 1-4~~, characterised in that, the temperature of each measuring point is measured simultaneously with the physical and/or chemical property.

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Claim 6

6. A method according to any one of ~~Claims 1-5~~, characterised in that, the predetermined amount of the another liquid added to the liquid amends the concentration of the component in the liquid with 0.01-5 % by weight.

7. A device for the characterisation of the physical and/or chemical properties of a liquid, characterised in that, it comprises

a) at least one measuring cell (1) provided with

i) an equipment (2) for the homogenisation of a liquid,

ii) at least two control equipment (3, 17), which comprise or are attached to control programs for changing of the two independent variables, component concentration and temperature, in a predetermined manner, the control equipment (3) of the component concentration comprising a dosage organ for the addition of another liquid containing a different component concentration,

iii) at least one measuring organ (9, 13, 14) for the determination of at least one dependent physical and/or chemical property of the liquid, and

iv) optionally a measuring organ (15) for the determination of the temperature,

b) at least one computer (5) for

i) the reception and storage of data relating to the dependent and independent variables via at least one electronic circuit (11', 12', 13', 14', 15') and the calculation of at least the component concentration from data obtained from the control program and

ii) compilation of the received and calculated values into three-dimensional measuring points and

c) equipment (16) for visualisation of the measuring points stored in the computer in a three-dimensional diagram.

8. A device according to Claim 7, characterised in that, the equipment for the control of the temperature of the fluid comprises a jacket (17) or a heating coil for the cooling and/or heating by means of a heat transfer medium, whereby cooling and heating is controlled by a program in the computer (5).

Claim 9

9. A device according to any of ~~Claims 8 or 9~~, characterised in that the equipment (3) for the control of component concentration by means of one or several dosing organs for the withdrawal and injection of the same amount of the fluid but with a different concentration, whereby amounts are controlled by a program in the computer (5).

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9 10. A device according to ^{Claim} ~~Claims 7, 8 or 9~~, distinguished by the fact that control programs are included in the computer (5).

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EP B1 Abstract

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